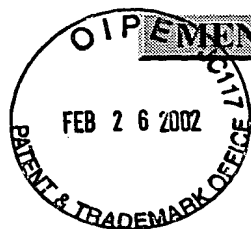


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PATENT ABSTRACTS OF JAPAN

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(22)Date of filing : 11.09.1997

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(54) FOOD PACKAGING BAG

(57)Abstract:

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SOLUTION: In a food packaging container formed by heat-sealing an unstretched laminated film, the laminated film has at least a blend resin layer of a polyethylene naphthalate resin and a polyethylene terephthalate resin or a multilayered structure wherein a polybutylene terephthalate resin layer (A), a gas barrier resin layer (B) and a heat-sealable resin layer (C) are successively laminated and the layer (A) is arranged as the outermost layer and the layer (C) is arranged as the innermost layer.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] About a food packing bag, in detail, in case this invention manufactures a ham sausage etc., it relates to the food packing bag used suitably.

[0002] Generally, after a ham sausage fills up with a raw material the bag which consists of a shrink film, it is heat-treated and manufactured within a retainer. And a printing label is stuck on a bag front face in advance of shipment. In order to influence the bond strength of a label with the moisture of a label attachment side, as for the bag front face of the product taken out from the inside of a retainer, it is desirable for a water break to be so good that dryness not needed before label attachment. Moreover, it sets into a food packing bag and the outstanding pinhole-proof nature at the time of transportation is required.

[0003]

[Problem(s) to be Solved by the Invention] this invention is made in view of the above-mentioned actual condition, and the purpose is in offering the food packing bag excellent in a label bond strength and pinhole-proof nature.

[0004]

[Means for Solving the Problem] The summary of this invention is a food packing container which heat seals a non-extended laminated film and changes. namely, the above-mentioned laminated film At least The blend resin layer or polybutyrene-terephthalate-resin layer (A) of a polyethyleneterephthalate resin and a polyethylene-terephthalate resin, It has the multilayer structure which carried out the laminating of the gas barrier nature resin (layer B) heat-sealing nature resin layer (C) one by one, and the above-mentioned (A) layer is arranged at an outermost layer of drum, and the above-mentioned (C) layer consists in the food packing bag characterized by being arranged at the innermost layer.

[0005]

[Embodiments of the Invention] Hereafter, this invention is explained in detail. The food packing bag of this invention heat seals a non-extended laminated film, and is constituted. and the above-mentioned non-extended laminated film -- at least -- the blend resin layer of a polyethyleneterephthalate (PEN) resin and a polyethylene-terephthalate (PET) resin, or a polybutylene-terephthalate (PBT) resin -- it has the multilayer structure which carried out the laminating of the (Layer A) gas barrier nature resin (layer B) heat-sealing nature resin layer (C) one by one And in the desirable mode of this invention, an adhesive resin layer is arranged between above-mentioned each class.

[0006] The well-known resin regularly used by various kinds of films can be used for each of PEN resins, PET, and PBT resins. Both rate in the blend resin of a PEN resin and PET is usually chosen from the range of 1:0.5 - a double quantitative ratio.

[0007] A gas barrier nature resin layer (B) consists of which resins chosen from the group of a polyamide (PA), an ethylene-vinylacetate-copolymer saponification object (EVOH), a polyethylene terephthalate (PET), polyethyleneterephthalate (PEN), and a polycarbonate (PC). In these, a polyamide (PA) or an ethylene-vinylacetate-copolymer saponification object (EVOH) is desirable, and a polyamide

(PA) is desirable especially.

[0008] In this invention, the polyamide obtained according to the polycondensation of each polyamide raw material of the lactam more than (1) 3 member ring, omega-amino acid in which (2) polymerizations are possible, and a (3) diamines and a dicarboxylic acid can be used.

[0009] As a lactam more than 3 member rings, an epsilon caprolactam, an ENANTO lactam, alpha-pyrrolidone, alpha-piperidone, etc. are mentioned, and, specifically, a 6-amino hexanoic acid, a 7-amino oenanthic acid, a 11-amino undecanoic acid, a 9-amino nonoic acid, etc. are mentioned as omega-amino acid in which a polymerization is possible.

[0010] As a diamine, a hexamethylenediamine, a nonamethylene diamine, an undecamethylene diamine, a dodeca methylene diamine, a meta-xylylene diamine, etc. are mentioned, and, specifically, a terephthalic acid, an isophthalic acid, an adipic acid, sebacic acid, a dodecane dibasic acid, a glutaric acid, etc. are mentioned as a dicarboxylic acid.

[0011] As an example of the polyamide used by this invention, nylon 4, 6, 7, 8, 11, 12, and 6, 6 and 6, 10 and 6, 11 and 6, 12 and 6T, 6/6, 6 and 6 / 6 [12 and]/6T, and 6I / 6T grade are mentioned.

[0012] A heat-sealing nature resin layer (C) usually A high density polyethylene (HDPE), A medium density polyethylene (MDPE), a low density polyethylene (LDPE), Polypropylene (PP), an ethylene vinyl acetate copolymer (EVA), An ethylene methacrylate copolymer (EMA), an ethylene ethyl acrylate copolymer (EEA), An ethylene methacrylate copolymer (EMMA), an ethylene ethyl-acrylate copolymer (EAA), an ethylene ethyl-methacrylate copolymer (EMAA), adhesive polyethylene, an ionomer resin, a EVA saponification object, and a line -- low density polyethylenes (L-LDPE) or those copolymers are used the inside of these -- a line -- a low density polyethylene (L-LDPE) is desirable

[0013] a line -- a low density polyethylene (L-LDPE) is the copolymer (ethylene content : 86-99.5-mol %) of ethylene and the alpha olefin of carbon numbers 3-13, and LDPE manufactured by the conventional high pressure process is polyethylene of different low Naka density The former of the structural difference from high pressure processes LDPE and LLDPE is the molecular structure of the letter of many branching, and the latter is a point used as the straight chain-like molecular structure. In manufacture of LLDPE, butene-1, a pentene -1, a hexene -1, an octene -1, and 4-methyl pentene-1 grade are mentioned as an alpha olefin by which copolymerization is carried out to ethylene. These copolymerization is performed by the low medium-voltage method which used the so-called Ziegler Natta catalyst.

[0014] If a tradename shows the example of above LLDPE, an isotropic antenna (UCC), Dow-Jones REKKUSU (Dow Chemical), SUKUREA (DEYUPONKANADA), MAREKKUSU (Philips), neo ZETSUKUSU and ULTZEX (Mitsui petrochemistry), Nippon Oil RINIRETSUKUSU (Nippon Oil chemistry company), suitor MIRETSUKUSU (DSM company), etc. will be mentioned.

[0015] An adhesive resin layer usually consists of denaturation polyolefin resin (APO). the polyolefin resin to which this APO made the ethylene component and/or the propylene component the main constituent -- alpha, beta unsaturated carboxylic acid, or its derivative -- copolymerization -- and/or, graft polymerization is carried out and it is manufactured

[0016] As the above-mentioned polyolefin resin, polyethylene, polypropylene, an ethylene propylene rubber, an ethylene-butene-1 copolymer, an ethylene vinylacetate copolymer, an ethylene-acrylic-acid copolymer, an ethylene-ethyl acrylic-acid copolymer, an ethylene-acrylic-acid sodium copolymer, etc. are mentioned, for example.

[0017] As the above-mentioned alpha by which copolymerization is carried out, beta-unsaturated carboxylic acid, or its derivative, an acrylic acid, a methacrylic acid, a methyl methacrylic acid, acrylic-acid sodium, acrylic-acid zinc, vinyl acetate, glycidyl methacrylate, etc. are mentioned, and it is contained by within the limits within 40 mol % in a chain. As copolymerization denaturation polyolefin resin, an ethylene vinylacetate copolymer, an ethylene-acrylic-acid copolymer, an ethylene-ethyl acrylic-acid copolymer, an ethylene-acrylic-acid sodium copolymer, etc. are mentioned, for example.

[0018] As the above-mentioned alpha by which a graft is carried out, beta-unsaturated carboxylic acid, or its derivative, an acrylic acid, a methacrylic acid, an ETAKURIRU acid, a maleic acid, fumaric acids, these acid anhydrides, or the ester of these acids is mentioned, for example. Especially in these

compounds for denaturation, a maleic anhydride is suitable. Moreover, the amount of grafts is preferably chosen from 0.05 - 1.5% of the weight of the range 0.01 to 25% of the weight to polyolefin resin.

[0019] A graft reaction is usually performed according to a conventional method by carrying out melting mixture of polyolefin resin, alpha, and beta-unsaturated carboxylic acid or its derivative at the resin temperature of 150-300 degrees C. In order to make it react efficiently on the occasion of a graft reaction, it is good to blend organic peroxide, such as alpha and alpha'-screw-tert-butyl peroxide-p-diisopropylbenzene, 0.001 to 0.05% of the weight.

[0020] In the above-mentioned non-laminated film, the (C) layer from which the (A) layer which consists of the blend resins or polybutyrene terephthalate resin of a polyethylenenaphthalate resin and a polyethylene-terephthalate resin is constituted from a heat-sealing nature resin by the outermost layer of drum is arranged at an innermost layer, and the (B) layer which consists of gas barrier nature resins is arranged at these interlayers. (A) 5-100 micrometers of 5-50 micrometers of 20-100 micrometers of 10 - 30-micrometer and (C) layer thickness are usually preferably set [layer thickness] to 30-70 micrometers for 10-70 micrometers and (B) layer thickness. And 2-30 micrometers of adhesive resin layer thickness arranged between each class in a desirable mode are usually preferably set to 5-15 micrometers.

[0021] The food packing bag of this invention manufactures the cylinder object of a laminated film by the bottom Mukai water-cooled fabricating method which used for example, the co-extrusion annular die, and, subsequently is manufactured by heat sealing the edge of a cylinder object. You may manufacture a laminated film by the T die method. And the above-mentioned heat sealing is usually performed as gusset processing. The above-mentioned coextrusion process and gusset processing are the technology in which itself and all are well-known, and the outline of the desirable mode is as follows.

[0022] Namely, usually, under the annular die, the above-mentioned coextrusion process arranges the tank in which the interior was equipped with the ring for sizes, and the facility of the tank concerned which arranges ***** and a winding roll one by one caudad, and changes is used for it. After ***** (ing) the raw material resin of a kind two or more from an annular die so that extension may not take place substantially, passing between the rings for sizes and cooling, it is the method of supplying and folding up the cylinder object of a laminated film on a winding roll through *****, and rolling round as a double film. Therefore, the laminated film obtained is a unstretched film substantially, and each heating contraction (JIS K 6734) of the length direction (MD) and the cross direction (TD) is 5% or less in the desirable mode.

[0023] Gusset processing is the processing method for inserting into the edge of a cylinder object and performing a seal, and in the usual gusset processing, the edge of a cylinder object is formed in the shape of a rectangle, it piles up two sides of others [carry out / the valley chip box of the two sides which counter / from those centers of abbreviation], and heat seals them with a straight-line-like heat-sealing bar along an edge.

[0024] Although the food packing bag of this invention is suitably used in case it manufactures for example, a ham sausage etc., it has the feature of excelling in the label bond strength immediately after taking out from a retainer, by having constituted the outermost layer of drum with the blend resin or PBT resin of a PEN resin and PET especially. The fact referred to as that it is not attained but is attained by these blend resins or the PBT resin depending on a PBT resin, PET of the same kind, or a PEN resin as shown in the after-mentioned example of comparison although this feature is presumed that the water break of the resin which constitutes the above-mentioned outermost layer of drum is based on the reason for being very good is a very unexpected fact.

[0025] Especially the food packing bag of this invention with which the outermost layer of drum consisted of PBT resins has the feature of excelling also in the curl-proof nature of the laminated film itself. That is, although the open end of a gusset bag may curl and the food packing bag with which the outermost layer of drum consisted of resins other than a PBT resin may cause trouble at the time of raw material restoration, this problem is not generated into the food packing bag with which the outermost layer of drum consisted of PBT resins.

[0026]

[Example] Hereafter, although an example explains this invention still in detail, this invention is not limited to the following examples, unless the summary is exceeded.

[0027] By the bottom Multi water-cooled fabricating method which used the 15 layer co-extrusion annular die of examples, the cylinder object of the laminated film which has the lamination of PBT (8 micrometers) / APO (6 micrometers) / NY/nylon 6 (16 micrometers) / APO (6 micrometers) / L-LDPE (44 micrometers) was manufactured. In the extrusion temperature, 240 degrees C and water-cooled temperature made 28 degrees C and winding speed 15m/min. The slit of the acquired cylinder object was carried out to predetermined length, gusset processing accompanied by straight-line-like heat sealing which met the edge of the end section was performed, and the innermost layer obtained [the outermost layer of drum] the gusset bag of L-LDPE by PBT.

[0028] After filling up the above-mentioned gusset bag with the hum raw material cooked beforehand, it set to the retainer and heat-treated and the rectangle-like hum whose overall length both every direction of a longitudinal direction core is 8cm, and is 35cm was manufactured. About the obtained hum product, the method of following (1) - (4) estimates a label bond strength, pinhole-proof nature, and curl nature, and a result is shown in Table 2 by it.

[0029] (1) Label bond strength : the label was stuck on the front face of the bag of the hum product immediately after taking out from a retainer and the Peel intensity (g/15mm) was measured.

[0030] (2) pinhole-proof nature : -- a chilled transport test [in / -20 degrees C / cases / ten / (ten bag / case)] / (4 Kunikida circles) -- carrying out -- the number of ** bags at the time of a transfer -- with, it evaluated

[0031] (3) Curl nature : visual observation of the state of curl of the open end of a gusset bag was carried out.

[0032] Except having changed, as the kind of resin of one to example 2 and example of comparison 3 outermost layer of drum was shown in Table 1, the hum product was manufactured, after obtaining a gusset bag like to example 1. About the obtained hum product, a label bond strength, pinhole-proof nature, and curl nature are evaluated, and a result is shown in Table 2.

[0033]

[Table 1]

	層構成
実施例 1	PBT/APO/NY/APO/L-LDPE
実施例 2	PEN:PET (1:1重量比) /APO/NY/APO/L-LDPE
比較例 1	PET/APO/NY/APO/L-LDPE
比較例 2	PEN/APO/NY/APO/L-LDPE
比較例 3	NY/APO/NY/APO/L-LDPE

[0034]

[Table 2]

例	ラベル接着強度 (g/15mm)	ピンホール耐性 (ケース/10)	反り
実施例 1	15	10	なし
実施例 2	12	8	あり
比較例 1	10	5	あり
比較例 2	8	3	あり
比較例 3	12	7	あり

	ラベル接着強度 (g/15mm幅)	耐ピンホール性 (個数)	カール性 (方向)
実施例 1	6 3 2	0	無し
実施例 2	5 7 1	0	有り (内側)
比較例 1	2 7 2	2	有り (内側)
比較例 2	3 1 8	2	有り (内側)
比較例 3	2 2	9	有り (外側)

[0035]

[Effect of the Invention] According to this invention explained above, the food packing bag excellent in a label bond strength and pinhole-proof nature is offered.

[Translation done.]